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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 91-18] [Aug. 2,1991]

Alex Martin
University of Nebraska - Lincoln, amartin2@unl.edu

Bob N. Stougarrd
Extension Weed Specialist, University of Nebraska-Lincoln

Lisa Brown Jasa
University of Nebraska-Lincoln, ljasa@unlnotes.unl.edu

Insect Science
Plant Disease
Weed Science
NEWS

UNIVERSITY OF NEBRASKA COOPERATIVE EXTENSION • INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES

No. 91-18

Aug. 2, 1991

In this issue

PLANT DISEASE

Goss's bacterial wilt and blight identified

Goss's bacterial wilt and blight was identified for the first time this season in leaf and stalk tissues collected from a field in northeast Nebraska.

Although the disease has waned statewide during the past decade, the pathogen can still cause serious damage in susceptible hybrids if given optimum conditions for spread and development.

The most characteristic symptom of the leaf blight phase is the dark green to black, discontinuous, water-soaked spots (resembling "freckles") along the margins and/or at the ends of developing leaf lesions. These water-congested, linear spots appear greasy. Young lesions are at first gray-green and oblong, developing parallel to the veins. As the lesions enlarge, droplets of bacterial exudate appear on the leaf surface. These droplets soon dry, leaving a crystalline substance that glistens when examined in direct sunlight. Expanding lesions grow together and eventually cause large portions of the leaf to die. When extensive, affected leaves appear as if scorched due to excessive heat, drying winds, and/or low soil moisture.

The wilt phase is seen as systemically infected plants with orange colored water-conducting elements, observable when infected stalks are cut in cross section. A water-soaked, slimy, wet rot commonly develops shortly thereafter. The bacterium can attack the corn plant at any growth stage. Seedlings as well as older plants can be killed following systemic infection. Since the bacterium invades the vascular elements, systemically infected plants display leaf symptoms resembling drought stress rather than the typical leaf blight symptoms noted above.

Primary infections come from bacteria which overwintered in the previous year's corn debris. Plant injury from driving rain storms increases infection opportunities. Hail, severe rainstorms, wind whipping, and sandblasting can cause small abrasions and wounds that allow the disease organism to enter the plant tissue and become established. In addition, the bacterium also can be carried, to a limited extent, on or within the seed. While this may not be an important mode of transmission in localized situations, it is an important mechanism for disease introduction into new geographic areas.

Resistant hybrids or crop rotation practices currently offer the best means of disease control. A one- to two-year rotation with a non-host crop is beneficial in reducing disease potential within a field. Other practices include good weed control and, where practical, incorporation of surface crop residue by fall plowing or spring discing.

David Wysong

Wheat trials indicate leaf rust resistance

Leaf rust was a signficant factor in Nebraska's wheat production for 1991. Growers should consider leaf rust resistant varieties for planting this fall. The following leaf rust ratings were taken June 12-13 at the University of Nebraska field trials in Custer, Dundy and Keith counties.

John Watkins

	Custer County			*Dundy County*			*Keith County*		
Variety	Grain yield bu/a	Bushel wt (lbs.)	Leaf rust (%)	Grain yield (bu/a)	Bushel wt (lbs)	Leaf rust (%)	Grain yield (bu/a)	Bushel wt (lbs)	Leaf rust (%)
AgriPro Abilene	24	56	57	41	64	37	31	59	48
AgriPro Bronco	25	58	45	40	63	43	37	59	73
AgriPro Thunderbird	32	62	553	38	63	23	33	58	50
AgriPro Longhorn	31	59	30	35	63	13	35	58	25
AgriPro Tomahawk	42	59	18	41	61	10	42	59	22
Arapahoe	38	358	4	43	62	15	50	59	18
Centura	25	57	7	44	64	23	34	58	25
Cody	25	56	25	46	61	20	37	56	60
Rawhide	19	52	67	41	63	57	35	58	65
Redland	34	55	13	39	60	13	42	57	25
Scout 66	20	56	70	39	63	40	39	61	65
Siouxland	24	56	52	40	63	47	43	57	60
Quantum 542	18	54	27	39	61	13	22	37	35
Quantum 549	22	55	50	45	61	25	34	56	47
Quantum 562	24	58	45	39	63	27	36	57	48
Karl	43	60	25	45	63	8	38	59	23
Lamar	26	53	13	41	63	7	33	58	22
Sandy	14	56	62	43	64	17	27	58	63
Siouxland 89	22	57	47	41	63	43	41	58	73
TAM 107	25	56	75	34	61	57	29	56	80
TAM 200	22	60	15	32	64	23	33	59	40
Average for all entries	26	56	39	40	62	27	36	57	46

INSECT SCIENCE

Crop Pest Conference to be held in Kearney

The 1991 Crop Pest Management Update (CPMU) Conference is scheduled for Dec. 3-4 at the Kearney Ramada Inn. Details of the program will be announced in a few weeks. The CPMU Conference provides the latest information about managing weeds, insects, diseases, and nematodes that damage field crops in Nebraska. Presentations are technical and include appropriate research information whenever possible.

I encourage crop consultants, extension agents, applicators, agrichemical and seed dealers, SCS personnel, and all other agricultural professionals to plan to attend this meeting. Registration information will be sent in the fall. Please contact me or your local University of Nebraska Extension office to be put on the mailing list.

Steve Danielson

Degree of defoliation often overestimated

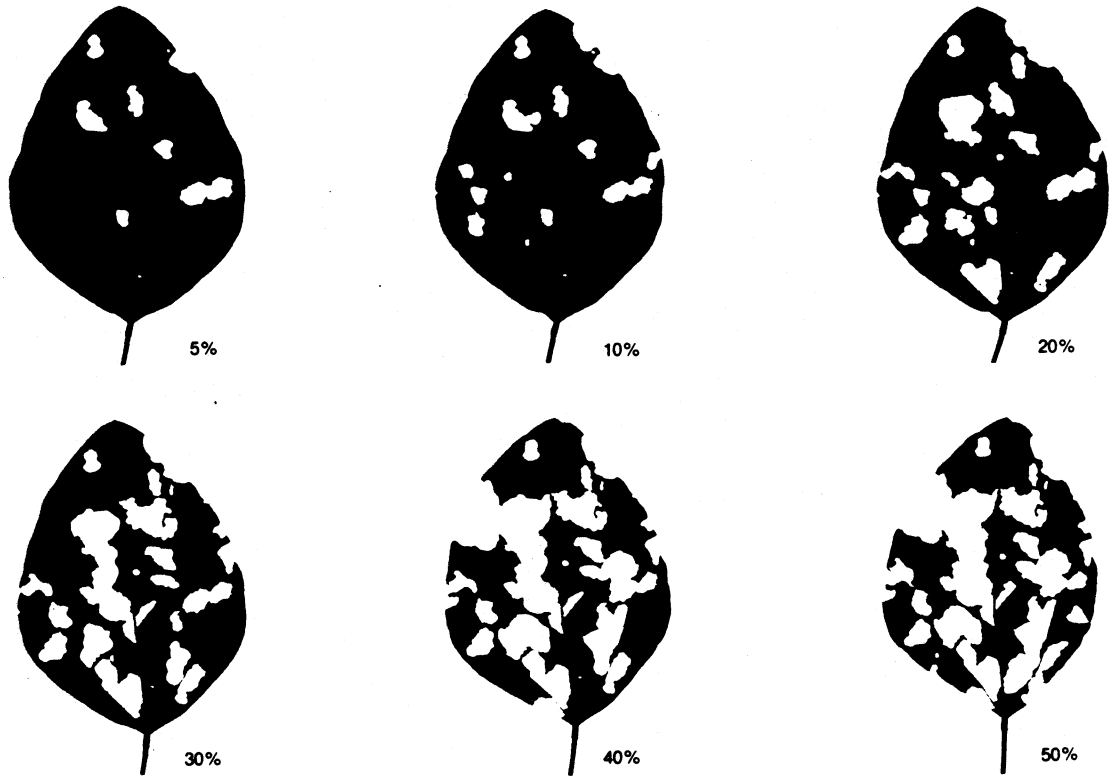
Determine damage before treating

Bean leaf beetle numbers are increasing in many soybean fields due to emergence of first generation adults. These 1/4-inch-long beetles vary in color and markings, but are usually reddish to yellowish-tan. They commonly have two to four black spots and a black outside border on each wing cover. Bean leaf beetles are the most important defoliating insect pest of Nebraska soybeans, although several other insects also may damage soybean foliage. These include various caterpillars (green cloverworms, loopers and salt marsh or woollybear caterpillars), grasshoppers and blister beetles. Check fields weekly for insects and damage.

Nebraska treatment guidelines are based primarily on the level of defoliation observed, so they apply to all defoliating insects. From bloom to maturity, defoliation levels of 25% or more warrant treatment. Estimating defoliation levels is difficult to do accurately. Nebraska research has shown that individuals, regardless of their level of experience, consistently tend to overestimate the amount of defoliation. Use the illustration below as a guide to improve your ability to estimate defoliation levels. Compare the defoliation levels with some leaves from a field to help you estimate actual defoliation.

Bean leaf beetles (and sometimes other insects such as grasshoppers and spotted cucumber beetles) also may feed on developing pods after leaves begin to yellow and are less attractive for feeding. Bean leaf beetle feeding is usually restricted to scraping off the surface tissue of the pod wall, and seeds are rarely fed upon. However, the pod scarring may open the pod to invasion by fungi or other pathogens which can cause seed discoloration or shriveling. If 10% or more of the pods are damaged by insects, treat with insecticides. A variety of effective insecticides are available for controlling bean leaf beetles. The soybean caterpillars commonly found in Nebraska can be controlled with *Bacillus thuringiensis* products (Dipel, Biobit). A complete list of insecticides labeled for soybean insect control can be found in the Extension publication, EC 91-1511, *Insect Management Guide for Nebraska Alfalfa, Soybeans,Small Grains, Range, and Pasture* . Additional information on the biology and management of bean leaf beetles in soybeans can be found in NebGuide G90-974, *The Bean Leaf Beetle in Soybeans.*

Bob Wright



Use these photos of defoliation levels of soybean leaves to check your estimates.

WEED SCIENCE

Consider herbicide options for special uses

Roundup is often used with special application equipment such as ropewick or bean bars with nozzles on soybeans, but several other herbicides also may offer advantages in these applications.

Roundup is active on a wide range of grass and broadleaf weed species, however it can injure or kill soybean plants which are hit with too much herbicide. Consider the questions below before selecting a registered soybean herbicide for these special application situations.

1. Will the herbicide do a reasonable job on the weed species? The limitation of using postemergence soybean herbicides through selective equipment is that, compared to Roundup, fewer weed species will likely be controlled. It may be necessary to combine products to widen the weed spectrum.
2. Is the herbicide specifically registered for use through ropewick or nozzle applicators? Not all postemergence soybean herbicides are so registered. Poast, Basagran, and Blazer are. As long as the herbicide is registered for use on soybeans and there is no specific prohibition against using it in a special applicator, it should be legal to use the product.
3. Can I meet the label restrictions regarding the number of days between application and soybean harvest? The table lists harvest restrictions for commonly used postemergence soybean herbicides. Producers should not apply any of these products closer to anticipated harvest than the period specified on the label.
4. Will carryover to susceptible crops be a problem with mid-summer applications? There probably is a carryover potential with some products. For example, Classic applied through a nozzle applicator on high Ph soil could injure susceptible crops next year. However, it is not well known what carryover problems to expect since most of the herbicide is applied to plant foliage rather than soil.

Russell Moomaw

Herbicide	*Required number of days between application and harvest*
Assure II	80
Basagran	None
Blazer	50
Classic	80
Cobra	90
Fusilade	Apply before bloom
Option	90
Pinnacle	80
Poast	90
Pursuit	85

IPW News

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Lisa Brown Jasa, Editor

For more information about a particular subject, write the authors at the addresses below:

UNL Department of Entomology
202 Plant Industry Bldg.
Lincoln, NE 68583-0816

UNL Department of Plant Pathology
406 Plant Science Bldg.
Lincoln, NE 68583-0722

UNL Weed Science
Department of Agronomy
279 Plant Science Bldg.
Lincoln, NE 68583-0915

Attack downy brome and jointed goatgrass

Plan weed control program in winter wheat

Downy brome and jointed goatgrass have become major problems in winter wheat production, especially in the winter wheat-fallow rotation. The most effective control measure is changing the winter wheat-fallow rotation to the three-year winter wheat-corn or grain sorghum or proso millet or sunflower-fallow rotation. These crops are planted in late spring. Rotations including crops planted in early spring such as spring wheat, spring barley, and oats are not as effective because the downy brome or jointed goatgrass still has time to emerge and produce seed if these crops are planted at the appropriate time for maximum yields. Crops planted in late spring increase the effectiveness of controlling these weeds in a crop rotation.

With downy brome one cycle of the three-year rotation usually does a good job of cleaning up the problem because annual brome seed remains viable only a short time. Jointed goatgrass control may require a longer rotation out of winter wheat because of seed dormancy.

For many it is not practical to shift to the three-year rotation. The best method for controlling these weeds in the winter wheat-fallow rotation is to plant the weed seed immediately after harvest at approximately the same depth as winter wheat is planted, with a maximum depth of approximately 3 inches. This can be done with various tillage implements. Maximum seed soil contact is desirable. Large amounts of crop residue, such as long straw or chaff make this difficult. Another problem is maintaining enough crop residue to prevent soil erosion. While plowing is quite effective for controlling downy brome, it is not nearly as effective in controlling jointed goatgrass because the seed can remain viable for three to five years and moves in the soil with tillage.

In late August or early September perform a tillage operation to destroy any downy brome or jointed goatgrass seed that has emerged and apply a residual herbicide such as atrazine. This can effectively reduce the number of tillage operations needed later in the fall or early in the spring which also reduces wind and water erosion. The disadvantage is that additional tillage operations would be more effective in planting additional seed which would increase control. This second tillage operation should be performed early enough so that these weeds, plus volunteer winter wheat, green foxtail, etc., are destroyed before planting winter wheat. This will aid in controlling wheat streak mosaic. Use tillage or Roundup in the spring to control plants which escape earlier measures. Another management practice which aids control is delaying winter wheat planting. If there is sufficient rain in late August or early September, a good flush of downy brome and jointed goatgrass will develop. Control these weeds before planting winter wheat.

Good management practices can greatly reduce downy brome and jointed goatgrass.

Herbicides also are registered for use in controlling or suppressing downy brome in winter wheat. The maximum control may be about 80%, but often the results are disappointing. Herbicides include Far-Go, Hoelon, and Treflan applied preplant incorporated. Check labels for rates and application dates.

Good management practices can greatly reduce these weeds. If you have some three-year rotation on your land and use custom combiners, always start them in these fields so that the combines will be cleaned out before entering your winter wheat-fallow fields. Use certified seed to make sure that you are not planting jointed goatgrass. Test for jointed goatgrass by putting winter wheat seed in a coffee can, add water, and stir. Jointed goatgrass will float to the top. Always plant quality seed and eliminate seed sources in roadside ditches and waste areas.

Robert Klein and Drew Lyon